

**Columbia Falls Maintenance Plan
September 2008 Maintenance Event**

1. Identification of specific air pollution control equipment to be maintained

CFAC's east dry alumina scrubber has individual Model 266 Dual Blade Slide Gate Dampers (Guillotine Damper) that control the gas stream entrance to the 6 (six) Reactors in the East Plant Dry Scrubber system. The slide gates will be cleaned and reconditioned as part of the September 2008 maintenance items.

The east dry alumina scrubber also has a bleed air system for adding cooling air to the scrubber inlet gases. This ductwork will be cleaned and reconditioned as part of the September 2008 maintenance items.

The transitional duct on Fan Tower #30 will be replaced during a scrubber outage in September 2008.

More specific details of these projects is provided in Section 7 of this plan.

2. Explanation of Need:

The dual blade slide gates require annual cleaning and inspection to ensure a positive seal is achieved when maintenance is required on the reactors. Cleaning and inspection cannot be performed on the dual blade slide gates without a shutdown of the scrubbing system. CFAC requests approval from MDEQ to shutdown the east dry alumina scrubber for three (3) hours and 15 minutes per day, for four (4) days, in order to clean and recondition these dual blade slide gates and perform the other maintenance items. The other maintenance items include cleaning and reconditioning of the bleed air ductwork and replacement of the transitional duct on Tower #30.

An alternative to shutting down the east dry alumina scrubber to perform maintenance, as described above, is to completely shutdown operations in Potrooms 7, 9 and 10, perform the required maintenance work, and then restart the three potrooms (1.25 potlines). This alternative would cause extreme hardship to both CFAC and the environment for the following reasons:

- As described in Table 1, fluoride emissions from shutting down the three potrooms, performing the required maintenance work, and restarting the potlines are estimated to be 31 tons. Performing the maintenance as proposed while shutting down the scrubbing system for four, three-hour and 15 minute periods (total of 13 hours), and continuing to operate the potline, results in fluoride emissions of 1.5 tons, which is significantly less.

- Shutdown and restart of the three potlines would create a massive operational hardship for CFAC by totally disrupting aluminum production schedules and potentially placing CFAC in default with customer contracts. Aluminum smelters are not easily restarted and it often takes six months after restart before processes within the reduction cells stabilize and aluminum is reliably produced. If CFAC's potlines are shut down, raw material shipments, and particularly alumina, would require re-scheduling and/or storage until the plant restarted and was stabilized in operation. Alumina is received by CFAC through a combination of rail and sea transportation. CFAC's alumina currently comes from off-shore sources and scheduling of shipments is a complicated task.
- Shutdown and restart of the potline would create a severe financial hardship for CFAC. CFAC currently operates 1.25 potlines and it is estimated to cost approximately \$1.9 million to start up 1.25 shutdown potlines.

For the above stated reasons, the shutdown and restart of the facility does not yield any public health or safety benefits, and actually causes more emissions to the environment.

3. Description and quantity of air contaminants

During the four three-hour 15 minute maintenance periods, the east dry scrubber will be shut down. Pot gases, containing gaseous fluoride, particulate fluoride, POM, and PM10 will be emitted from the potrooms. Fluoride emissions estimates during the maintenance event are presented in the lower part of Table 1. Table 2 presents estimates of 24-hour PM-10 emissions from the operating 1.25 potlines during normal operations and during the proposed maintenance event. It is estimated that the 24-hour PM-10 emissions during the day of maintenance will exceed normal 24-hour, daily PM-10 emissions by 669 pounds.

4. Description of specific procedures to minimize length of maintenance period

The following activities will be done to minimize the length of each maintenance period:

Prior to shutting the scrubber down, all equipment and manpower will be staged in place and will be ready for removing (and re-installing on a future day) the guillotine dampers.

Prior to shutting the scrubber down, all equipment (Genie Manlift S65, cranes, etc) and manpower will be staged in place and will be ready for installing the blind flange so the bleed air ductwork can be reconditioned.

Prior to shutting the scrubber down, all equipment (Genie Manlift S65, cranes, etc) and manpower will be staged in place and will be ready for the replacement of the transitional duct.

Scrubber outage time will be minimized to the extent possible. For example, a blind flange will be installed on the bleed air ductwork system during one of the outages. Then work can proceed to clean the ductwork after the scrubber is re-started. The blind flange will be removed during a later date scrubber outage.

To install the blind flange on the bleed air ductwork, every-other-bolt on the flanges on the existing ductwork will be removed prior to shutting down the dry alumina scrubber to minimize the scrubber down time. Remaining bolts will be removed after the scrubber is shut down.

5. Description of specific procedures to minimize uncontrolled PM-10 emissions

During the 1.25 hour maintenance periods, CFAC will curtail the following operations that have the potential to cause PM-10 emissions:

CFAC will not conduct reduction cell tapping during the maintenance period

CFAC will not conduct pin pulling activities during the maintenance period

CFAC will not rake reduction cells during the maintenance period

CFAC will not tap cryolite bath during the maintenance period

6. Citation of permit requirements that might not be complied with during maintenance event

The following permit requirements may not be complied with during the maintenance event:

Rule Citation	Description
17.8,.302	Incorporation by Reference
17.8.304	Visible Air Contaminants
17.8.308	Particulate Matter, Airborne
17.8.111	Circumvention
17.8.715 (2)	Emission Control Requirements
17.8.1404	Visible Air Contaminants
17.8.331	Emission Standard for Existing Aluminum Plants – Fluoride Emissions

Rule Citation	Description
17.8.332	Emission Standard for Existing Aluminum Plants – Visible Emissions
17.8.342	Emission Standards for Hazardous Air Pollutants for Source Categories

7. Expected date of maintenance events

Date & Time	Maintenance Activity	Projected Scrubber downtime (hrs)
9/9/08 @ 9:00 am	Remove guillotine dampers from 2 of six dry scrubbers. Install backup guillotine damper in one of the reactors, and install a blind flange in the other reactor. Install a blind flange in the bleed air system ductwork. Restart the primary scrubbing system. Recondition the two removed guillotine dampers for installation on 9/16/08. Clean the bleed air system ductwork during the next three weeks.	3.25 hrs
9/16/08 @ 9:00 am	Remove 2 guillotine dampers from the remaining 4 dry scrubbers. Install the reconditioned dampers (repaired in the previous maintenance event) in the 2 reactors. Replace the transitional duct at Fan Tower #30. Restart the primary scrubbing system. Recondition the two removed guillotine dampers for installation on 9/23/08.	3.25 hrs
9/23/08 @ 9:00 am	Remove the remaining 2 guillotine dampers from the dry scrubbers. Install the reconditioned dampers (repaired in the previous maintenance event) in the 2 reactors. Restart the primary scrubbing system. Recondition the two removed guillotine dampers.	3.25 hrs
9/30/08 @ 9:00 am	Remove the blind flange installed on 9/9/08 and install a reconditioned damper. Remove the blind flange from the bleed air system. Restart the primary scrubbing system. Place the other reconditioned damper in the warehouse for future use.	3.25 hrs